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Title: Earth and Environmental Sciences (EES) Division  
Solid Earth Programs

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# Earth and Environmental Sciences (EES) Division

## Solid Earth Programs

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### 3 Groups:

#### EES-14 Earth System Observations

- Atmosphere, Climate and Ecosystem Science
- Radio-Chemistry
- Geology, Geochemistry, and Geomaterials

#### EES-16 Computational Earth Sciences

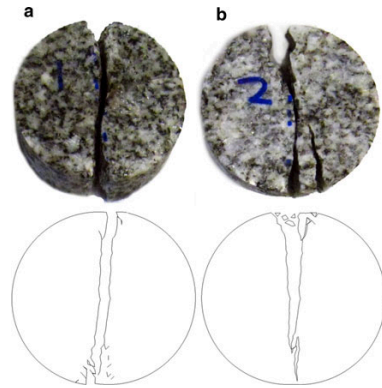
- Atmosphere and Weapons Phenomenology
- Subsurface Flow and Transport

#### EES-17 Geophysics

- Geophysical Monitoring and Characterization
- **Geodynamics**
- Wave Physics

# EES-17 Geophysics Group Overview

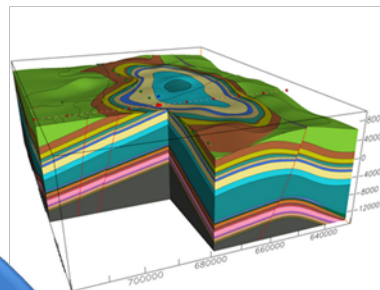
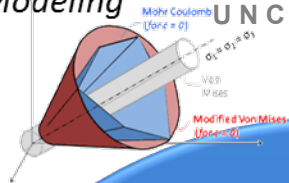
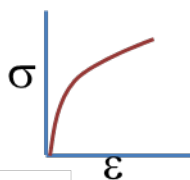
Major Focus Areas: Seismology, Infrasound, Material Deformation Modeling, Acoustics, **Geodynamics**



## Program Areas:

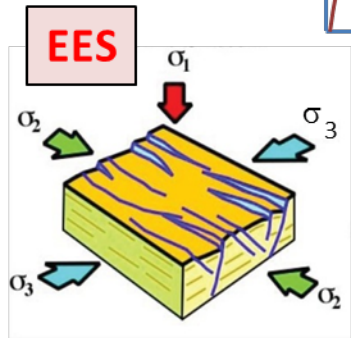
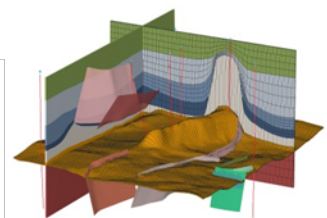
- Nuclear energy, fossil energy, renewable energy
- Weapons program and effects, containment
- Nuclear detonation monitoring, CTBT, threat reduction
- Acoustic non-destructive evaluation
- Earthquake triggering, natural hazards
- Medical imaging



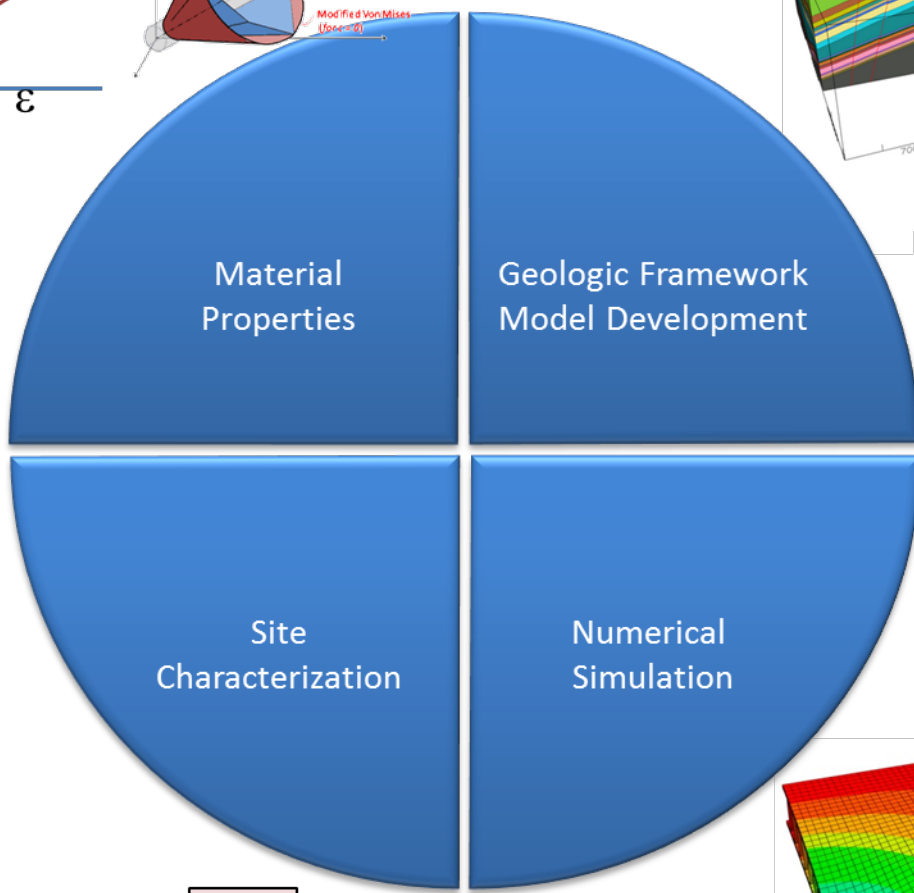


EES

3d Structure



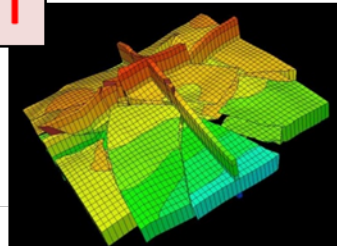
Ambient Stress



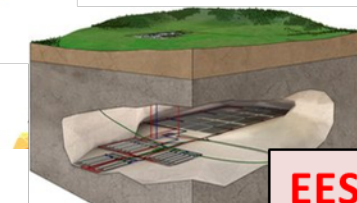
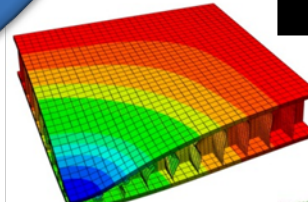
Remote Sensing



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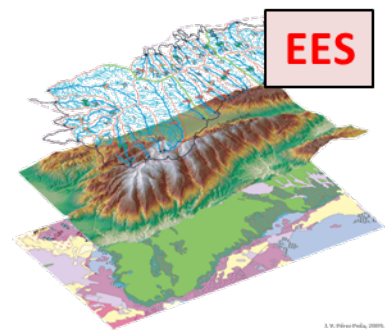


Full Field  
Geomechanics

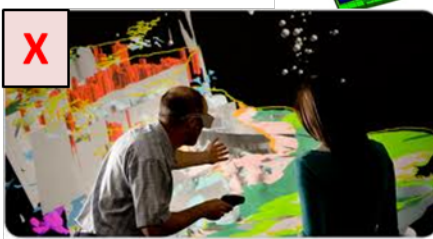


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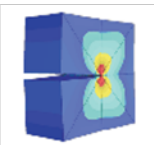
Tectonics  
Geomorphology  
Topography  
Geology



EES



Visualization



Fracture  
Dynamics



# EES-17 Growth Areas: Where are we going?

- Programmatic Growth Areas
  - Nuclear Nonproliferation
  - Proliferation Detection / Treaty Support
  - Hard and Deeply Buried Targets
    - Locate, characterize, defeat
  - Geo-Abaqus (GAMUT) (model, simulation, visualization)
  - Seismic Hazard / Volcanic Hazard / LASN
  - NDE (nuclear energy, weapons program, industrial)
  - WFO sponsors (CRADA)

